

परियोजना का नाम:- जनपद चमोली में पोखरी रा0इ0का10 चौड़ी - विरसण सेरा मोटर मार्ग के नव निर्माण हेतु 1.75 हे0 सिल/आरक्षित वन भूमि, एवं मक डिस्पोजल हेतु ०.27 हे0 कुल भूमि 1.75 हे0 सिल वन भूमि का लो0नि0वि0 को हस्तान्तरण प्रस्ताव।

**भू-वैज्ञानिक की आख्या**

भू-वैज्ञानिक की आख्या संलग्न है।

अमीन

कनिष्ठ अभियन्ता  
नि0 खण्ड लो0नि0वि0 पोखरी

सहायक अभियन्ता  
नि0 खण्ड लो0नि0वि0 पोखरी

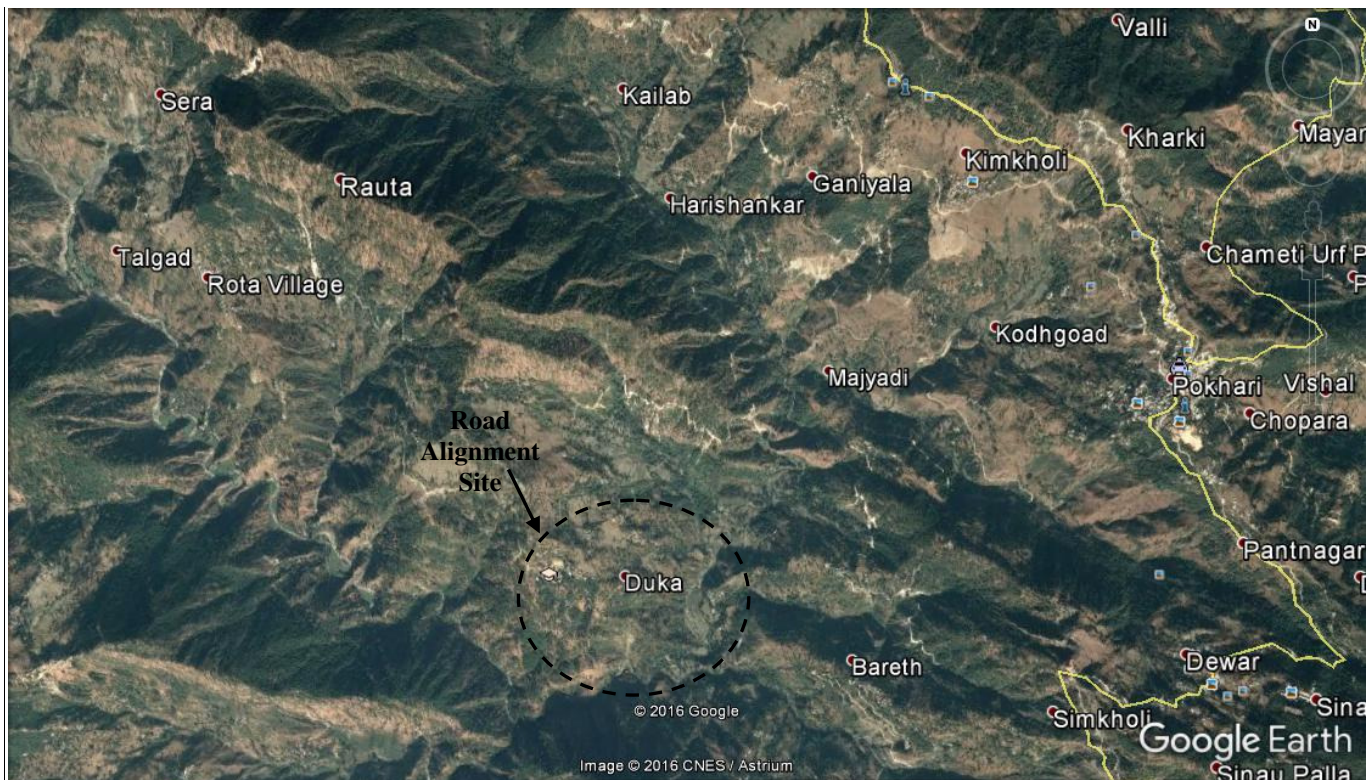
अधिक्षासी अभियन्ता  
नि0 खण्ड लो0नि0वि0 पोखरी



**Geological Assessment of 5.0 Km long Chaundi-Virsansera Motor Road**  
**Alignment Corridor between Chainage 0.0 to 5.0 Km, Pokhri Division,**  
**District Chamoli (Garhwal)**  
**Tushar Sharma**  
**16/10/2017**

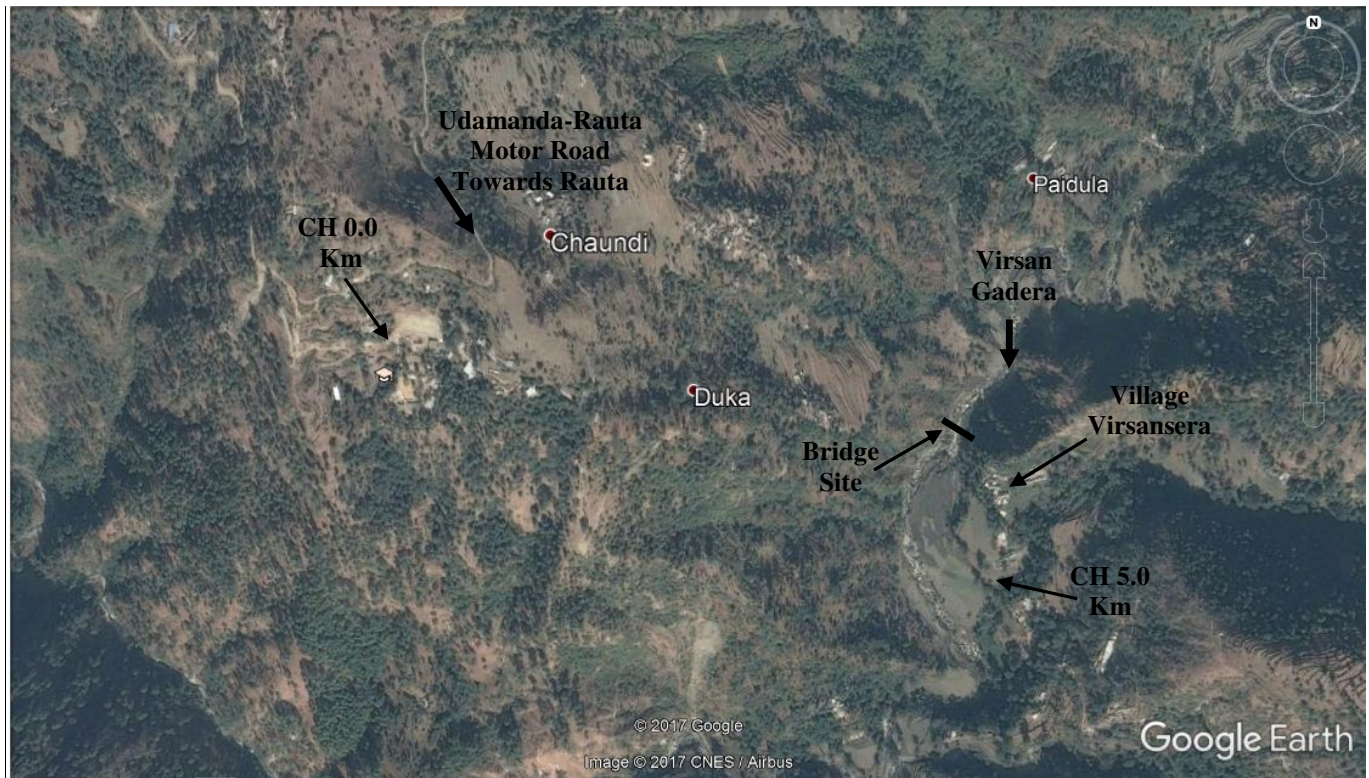
- 1- Introduction:** The Construction Division, Pokhri, has been entrusted for the construction of 5.0 Km long Chaundi-Visansera Motor Road between CH 0.0 to 5.0 Km. In order to assess the geological conditions of the road alignment site for its feasibility, Er. Rajesh Chandra (Executive Engineer) Construction Division, PWD, Pokhri asked for a geologist to make a site visit. Consequent to his request a visit to the proposed road alignment site was made on 12/10/2017; Er. Neeraj Bhandari and Er. Kuldeep Rawat (Junior Engineers) CD PWD, Pokhri were present during the site visit.
- 2- Topographical Information/Location:** The alignment site proposed for the construction of 5.0 Km long Chaundi-Visansera Motor Road extends from Government Inter College Chaundi which itself is connected to CH 23 Km of Udamanda-Rauta Motor Road with a 400 m long link road, Pokhri Division, district Chamoli (Garhwal). The proposed road alignment connects village Chaundi with Majyani, Bhanwadi, Jhikwani, Kwiriyal Khark and Visansera villages. The co-ordinates along with elevation, masl of the site CH 0.0 Km as follows-

Latitude : 30°20'05.25"  
Longitude : 79°09'45.00"  
Approximate Elevation : 1415 M



*Broader Satellite View of the Site*





*Closer Satellite View of the Road Alignment Site*

**3- Geological Assessment:** Geologically, the road alignment site area falls under the Meta-Sedimentaries of Lesser Himalaya. The rocks exposed in the area consist of Quartzite, Phyllitic Quartzite, Talc-Serisite Schist, Chlorite Schist & which belong to Berinag Formation of Jaunsar Group and Bhatwari and Barkot units of Ramgarh Group. The hill slope of the site area is moderate to steep which declines at  $\sim 30^{\circ}$ - $50^{\circ}$ . The road alignment passes through cultivation land (Naap Khet), Pine trees and shrubs (Civil Land) along with patches of hard/jointed quartzitic to schistose Quartzite bed rock. The approximate strength of exposed rock mass is around  $\sim 100$  MPa and has undergone  $W_0$  to  $W_2$  weathering grade.



*View of site at CH 0.0 Km near GIC Chaundi*

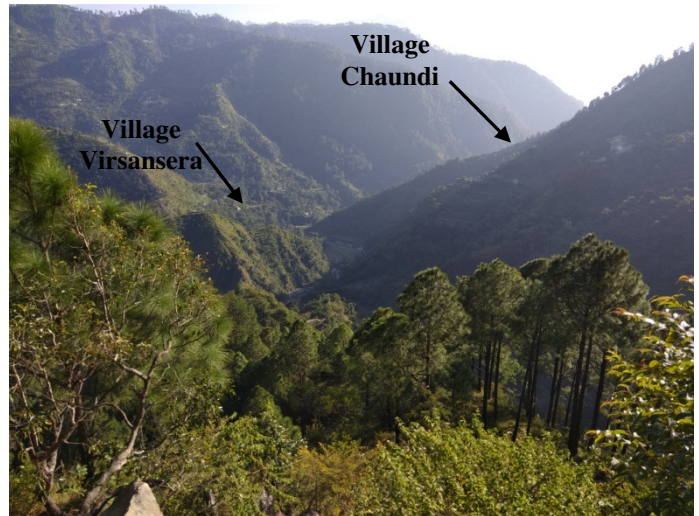


*View of hill slope of site at CH 1.0 Km near Village Majyani*





*View of site at CH 0.0 Km from village Majyani*



*View of site from Udamand-Rauta Road*

There total four hairpin bends on the road alignment which are at CH 0.300, 1.600, 2.050, 2.200 and 2.800 Km respectively. The road alignment has a falling gradient of 1:20 with no rising gradient and 1:40 in the hair pin bends. At CH 4.0 Km the road alignment reaches the right bank of Virsan Gadera a ~50 m span bridge would be required in order to connect the alignment with village Virsansera which is on the left bank of the Gadera.

- 4- Seismicity of the area:** According to Indian Standard code the site falls in seismic zone V of seismic zoning Map of India (IS 1893, part 1, 2002) which corresponds to intensity IX and above on MM scale.

On the basis of the geological inspection of the site studies carried and the facts given above, the following recommendations are being made for the construction of the proposed road failing to these recommendations this report will be automatically treated as cancelled.

## **5- Recommendations:**

1. Blasting by explosives for the road construction is to be avoided as far as it is possible. Use of explosives will render the slope highly unstable as the slope consists of jointed/ fractured rock mass and overburden/slope wash material.
2. Excavation work must be carried out by skilled manual workers as the rock slopes are prone to slide down in case of rapid disturbance.
3. The slopes on either sides of the road must be protected by the construction of suitably designed retaining wall/ breast wall with proper weep holes, this work shall be carried out simultaneously with the advancement of the road cutting especially between CH 2.050 & 2.200 Km where there are two Hair Pin Bends which are quite close to each other.
3. Construction of large U-shaped longitudinal concrete lined drain all along the hill side of the road with adequate provision of cross drains is necessary.
4. Construct the road by half cut and half fill techniques and compact the fill material properly by dynamic compaction.

5. Disposal of muck and excavated waste on the lower slopes of this road is to be strictly avoided; failing to which will increase the weight of the lower slope resulting in the increase in driving forces. It is advised to dispose the muck on the identified site for muck disposal.
6. All the construction activities ought to be carried out as per the standard codes of practice laid by the BIS and MORTH.

**6- Conclusion:** On the basis of the geological/geotechnical studies carried at the site and with the above recommendations, the site proposed for 5.0 Km long Chaundi-Virsansera Motor Road was found geologically suitable for construction between CH 0.0 to 5.0 Km.

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**Date: 16/10/2017**



**(Tushar Sharma)  
Assistant Geologist  
Office of Chief Engineer  
PWD (Pauri Zone)**